

## REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action. Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicant requests that the Examiner carefully review any references discussed below to ensure that Applicant's understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

### Status of the Claims

Claims 1-45 are pending. Claims 1, 12, 18, 28, 31, 32, 44, and 45 are currently amended. No claims are canceled. No claims are added. No new matter has been added.

### Summary of the Office Action

Claims 1, 12, 18, 28, 31, 32, 44, and 45 stand objected because of informalities.

Claims 1-10 and 18-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No. 20020113649 to Tambe et al. (hereinafter "Tambe")

Claims 11 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tambe in view of U.S. Patent Application No. 20020090026 to Ashley (hereinafter "Ashley").

Claims 12-17 and 28-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Tambe and Ashley in view of U.S. Patent Application No. 200200610058 to Sommer (hereinafter "Sommer").

Claims 31, 44, and 45 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tambe in view of Sommer.

Claims 32-43 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Tambe and Sommer in view of Ashley.

### Response to Objections

The drawings stand objected to because Figure 1 is not designated as prior art. In particular, the Office Action states that Figure 1 should be designated as prior art because only that which is old is illustrated. Figure 1 illustrates a graphical example of attenuation. Applicant has not admitted that Figure 1 is prior art and the content of Figure 1 does not necessarily meet the guidelines under 35 U.S.C. §§ 102, 103 to qualify as prior art. Therefore, Applicant respectfully requests that the objection to Figure 1 be withdrawn.

The specification stands objected to because acronyms are used. In particular, the Office Action states that “DSL” should be changed to “digital subscriber line (DSL)” and “POTS” should be changed to “plain old telephone service (POTS).” Applicant respectfully submits that the specification has been amended to make the changes as suggested by the Examiner. Applicant appreciates the Examiner’s recommendation and respectfully requests that the objection to the specification be withdrawn.

The specification also stands objected to because the status of referenced copending applications is not provided. In particular, the Office Action states that Applicant should provide the status of the copending applications cited on page 1. Applicant respectfully submits that the specification has been amended to make the changes as suggested by the Examiner. The specification has also been amended to make a similar change on page 23. Applicant appreciates the Examiner’s recommendation and respectfully requests that the objection to the specification be withdrawn.

Claims 1, 12, 18, 28, 31, 32, 44, and 45 stand objected to because of informalities. In particular, the Office Action states that “DSL” should be changed to “digital subscriber line (DSL)” and “POTS” should be changed to “plain old telephone service (POTS).” Applicant respectfully submits that the indicated claims have been amended to make the changes as suggested by the Examiner. Applicant further notes that claim 32 is not amended to address the stated informality (although it is amended for other informalities) because claim 32 depends from amended claim 31, which incorporates the requested amendment. Applicant appreciates the Examiner’s recommendation and respectfully requests that the objection to claims 1, 12, 18, 28, 31, 32, 44, and 45 be withdrawn.

Response to Rejections under 35 U.S.C. § 102(e)

The Examiner rejected claims 1-10 and 18-26 under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully requests withdrawal of these rejections because the cited reference fails to disclose all of the limitations of the claims.

CLAIMS 1-17

Claim 1 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully submits that claim 1 is patentable over the cited reference because Tambe does not disclose all of the limitations of the claim. Claim 1, as amended, recites:

A system for improving transmission of digital subscriber line (DSL) signals over a local loop, the system comprising:  
a loop extender capacitively coupled to the local loop, the loop extender including  
    **a plurality of upstream complex impedances** coupled in parallel,  
    **a plurality of downstream complex impedances** coupled in parallel,  
    a first upstream filter/amplifying element coupled to the plurality of upstream complex impedances via a first switch, and  
    a first downstream filter/amplifying element coupled to the plurality of downstream complex impedances via a second switch.  
(Emphasis added).

In support of the rejection, the Office Action states, in part:

Regarding claim 1, Tambe et al teach[es] . . . a loop extender capacitively coupled to the local loop, the loop extender including **a plurality of upstream complex impedances** (i.e. a combination of resistors, capacitors and inductors) coupled in parallel, **a plurality of downstream complex impedances** coupled in parallel [Fig. 6; Para: 0059-0063; Abstract] . . . .

Office Action, 09/20/05, p. 4 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because Tambe fails to disclose all of the limitations of the claim. In particular, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The modified load coils, shown in

Figure 6, are interspersed with the DSL repeaters on a DSL loop. Tambe, para. 0062. The DSL repeater, embodiments of which are shown in Figures 4 and 5, includes load coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. Tambe, Fig. 4. The DSL Repeater is also known as a loop extender because the amplifiers introduce gain in the DSL signals to extend the transmission range of the DSL signals. Tambe, para. 0030. The DSL Repeaters of Figures 4 and 5 do not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe, shown in Figure 6, include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first and second circuit portions apparently act to filter noise from the downstream and upstream DSL signals. More specifically, the first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059.

The Office Action appears to characterize the first and second circuit portions as complex impedances. Even if the first circuit portion were interpreted as a complex impedance, Tambe only discloses a single downstream circuit portion. Similarly, even if the second circuit portion were interpreted as a complex impedance, Tambe only discloses a single upstream circuit portion. Therefore, the modified load coils do not include a plurality of upstream complex impedances and a plurality of downstream complex impedances. Additionally, the modified load coils are not a loop extender because the modified load coils do not amplify the signals or otherwise extend the transmission range of the upstream and downstream signals. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

In contrast, claim 1 recites “a plurality of upstream complex impedances” and “a plurality of downstream complex impedances.” For the reasons stated above, Tambe fails

to disclose all of the limitations of claim 1. In particular, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances. Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 1 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 1 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 2-17 depend from independent claim 1, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 2-17 are also patentable over the cited reference. Accordingly, Applicant requests that the rejection of claims 2-10 under 35 U.S.C. § 102(e) and the rejection of claims 11-17 under 35 U.S.C. § 103(a) be withdrawn.

#### CLAIMS 18-30

Claim 18 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Tambe. Applicant respectfully submits that claim 18 is patentable over the cited reference because Tambe does not disclose all of the limitations of the claim. Claim 18, as amended, recites:

A method for improving transmission of digital subscriber line (DSL) signals over a local loop, comprising the steps of:

configuring a loop extender with

a plurality of upstream complex impedances coupled in parallel;  
a plurality of downstream complex impedances coupled in parallel;  
a plurality of upstream filter/amplifying elements coupled in parallel and coupled in series with the plurality of upstream complex impedances; and

a plurality of downstream filter/amplifying elements coupled in parallel and coupled in series with the plurality of downstream complex impedances.

(Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above.

Applicant respectfully disagrees with the Office Action's characterization of the prior art because Tambe fails to disclose all of the limitations of the claim. In particular, Tambe does not disclose configuring a loop extender with a plurality of upstream complex impedances and a plurality of downstream complex impedances.

Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The DSL repeater includes load coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. The DSL Repeater does not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059. Therefore, the modified load coils do not include a plurality of upstream complex impedances and a plurality of downstream complex impedances. Additionally, the modified load coils are not a loop extender because the modified load coils do not amplify the signals or otherwise extend the transmission range of the upstream and downstream signals. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

In contrast, claim 18 recites “a plurality of upstream complex impedances” and “a plurality of downstream complex impedances.” For the reasons stated above, Tambe fails to disclose all of the limitations of claim 18. In particular, Tambe does not disclose configuring a loop extender with a plurality of upstream complex impedances and a plurality of downstream complex impedances. Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 18 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 18 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 19-30 depend from independent claim 18, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 19-30 are

also patentable over the cited reference. Accordingly, Applicant requests that the rejection of claims 19-26 under 35 U.S.C. § 102(e) and the rejection of claims 27-30 under 35 U.S.C. § 103(a) be withdrawn.

Response to Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 11-17 and 27-45 under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Ashley and/or Sommer. Applicant respectfully requests withdrawal of these rejections because the combination of cited references fails to teach or suggest all of the limitations of the claims.

CLAIMS 31-43

Claim 31 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 31 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 31, as amended, recites:

A system for improving transmission of digital subscriber line (DSL) signals over a local loop, the system comprising:

**selectable line termination and equalization (SLTE) DSL amplification circuitry** capacitively coupled to the local loop via bypass relay switches;

a plain old telephone service (POTS) loading coil adapted to be coupled to the local loop for improving transmission of POTS band signals over the local loop; and

a diagnostic/control unit coupled to the local loop for receiving and processing control signals from a central office, coupled to the bypass relay switches via a bypass relay for controlling the bypass relay switches, and coupled to the SLTE DSL amplification circuitry via a plurality of switch control lines for controlling the SLTE DSL amplification circuitry.

(Emphasis added).

In support of the rejection, the Office Action states, in part:

Regarding claim 31, Tambe et al teach[es] . . . **selectable line termination and equalization (SLTE) Digital Subscriber line (DSL) amplification circuitry** capacitively coupled to the local loop via bypass relay switches (not shown) [Fig. 6] . . . .

Office Action, 09/20/05, p. 9 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the

limitations of the claim. In particular, Tambe and Sommer, either alone or in combination, do not teach or suggest selectable line termination and equalization (SLTE) amplification circuitry.

Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The DSL repeater includes load coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. The DSL Repeater does not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059. Therefore, the modified load coils do not include a plurality of upstream complex impedances and a plurality of downstream complex impedances. Additionally, the modified load coils are not a loop extender because the modified load coils do not amplify the signals or otherwise extend the transmission range of the upstream and downstream signals. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

In contrast, claim 31 recites “selectable line termination and equalization (SLTE) DSL amplification circuitry,” which includes a plurality of upstream complex impedances and a plurality of downstream complex impedances. For the reasons stated above, Tambe and Sommer, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest SLTE amplification circuitry having a plurality of upstream complex impedances and a plurality of downstream complex impedances. Given that the cited references fail to teach or

suggest all of the limitations of the claim, Applicant respectfully submits that claim 31 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 31 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 32-43 depend from independent claim 31, which is patentable over the cited references, Applicant respectfully submits that dependent claims 32-43 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 32-43 under 35 U.S.C. § 103(a) be withdrawn.

#### CLAIM 44

Claim 44 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 44 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 44, as amended, recites:

A method for improving transmission of digital subscriber line (DSL) signals over a local loop, comprising the steps of:  
transmitting control signals and DSL signals over the local loop;  
providing DSL signal amplification via **selectable line termination and equalization (SLTE) DSL amplification circuitry** coupled to the local loop;  
receiving the control signals via a diagnostic/ control unit (DCU) coupled to the local loop;  
processing the control signals;  
selecting SLTE DSL amplification circuitry switch states in accordance with the processed control signals;  
sampling DSL signals within the SLTE DSL amplification circuitry;  
processing the sampled DSL signals;  
selecting SLTE DSL amplification circuitry switch states in accordance with the processed sampled DSL signals to improve SLTE DSL amplification circuitry performance; and  
uncoupling SLTE DSL amplification circuitry from the local loop in accordance with the processed control signals.  
(Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above.

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the limitations of the claim. In particular, Tambe and Sommer, either alone or in

combination, do not teach or suggest providing DSL signal amplification via selectable line termination and equalization (SLTE) DSL amplification circuitry.

Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The DSL repeater includes load coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. The DSL Repeater does not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059. Therefore, the modified load coils do not include a plurality of upstream complex impedances and a plurality of downstream complex impedances. Additionally, the modified load coils are not a loop extender because the modified load coils do not amplify the signals or otherwise extend the transmission range of the upstream and downstream signals. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

In contrast, claim 44 recites “providing DSL signal amplification via selectable line termination and equalization (SLTE) DSL amplification circuitry,” which SLTE circuitry includes a plurality of upstream complex impedances and a plurality of downstream complex impedances. For the reasons stated above, Tambe and Sommer, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest providing DSL signal amplification via SLTE amplification circuitry. Given that the cited references fail to teach or suggest all of the limitations of the claim, Applicant respectfully submits that

claim 44 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 44 under 35 U.S.C. § 103(a) be withdrawn.

#### CLAIM 45

Claim 45 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tambe in view of Sommer. Applicant respectfully submits that claim 45 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 45, as amended, recites:

A system for improving transmission of digital subscriber line (DSL) signals, the system comprising:  
    means for transmitting control signals and DSL signals;  
    means for providing selectable DSL signal amplification coupled to the means for transmitting;  
    means for receiving the control signals coupled to the means for providing DSL signal amplification;  
    means for processing the control signals to generate processed control signals;  
    means for improving performance of the means for providing DSL signal amplification in accordance with the processed control signals;  
    means for sampling the DSL signals within the means for providing selectable DSL signal amplification;  
    means for processing the sampled DSL signals to generate processed sampled DSL signals;  
    means for improving performance of the means for providing DSL signal amplification in accordance with the processed sampled DSL signals; and  
    means for uncoupling the means for providing DSL signal amplification from the means for transmitting in accordance with the processed control signals.  
(Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above.

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the limitations of the claim. In particular, Tambe and Sommer, either alone or in combination, do not teach or suggest means for providing selectable DSL signal amplification.

Tambe is directed to modified load coils for long subscriber loops. Tambe, Abstract. In particular, Tambe discloses modified load coils that can be used in conjunction with DSL repeaters. Tambe, para. 0058. The DSL repeater includes load

coils for conventional telephone signals (POTS), high pass filters (HPF) and an amplifier for downstream signals, and bandpass filters (BPF) and an amplifier for upstream signals. The DSL Repeater does not include a plurality of upstream complex impedances or a plurality of downstream complex impedances, as recited in the claim.

The modified load coils of Tambe include load coils for a first frequency band (e.g., POTS), a first circuit portion for a second frequency band (e.g., ADSL), and a second circuit portion for a return path for the second frequency band. Tambe, para. 0060. The modified load coils do not include amplifiers to amplify the downstream or upstream DSL signals. Tambe, Fig. 6. The first circuit portion is for downstream ADSL signals and the second circuit portion is for upstream ADSL signals. Each circuit portion includes one resistor and one capacitor coupled in parallel. Tambe, Fig. 6; para. 0059. Therefore, the modified load coils do not include a plurality of upstream complex impedances and a plurality of downstream complex impedances. Additionally, the modified load coils are not a loop extender because the modified load coils do not amplify the signals or otherwise extend the transmission range of the upstream and downstream signals. Consequently, Tambe does not disclose a loop extender including a plurality of upstream complex impedances and a plurality of downstream complex impedances.

In contrast, claim 45 recites “means for providing selectable DSL signal amplification.” For the reasons stated above, Tambe and Sommer, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest means for providing selectable DSL signal amplification. Given that the cited references fail to teach or suggest all of the limitations of the claim, Applicant respectfully submits that claim 45 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 45 under 35 U.S.C. § 103(a) be withdrawn.

### CONCLUSION

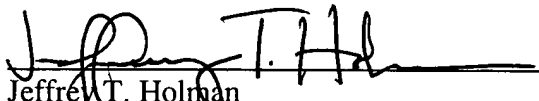
It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome. If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Jeffrey Holman at (408) 720-8300.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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